

## Supply Services and Consumer's Services

This bulletin:

1. Clarifies number of supply services of the same voltage permitted to be run to a residential building for the application requirement of CE Code Rule 6-102.
2. Clarifies requirements for the consumer's service equipment location, and consumer's service conductors location, and explains the regulated work in respect of consumer owned service raceways installed for the supply service of BC Hydro run conductors; for the application requirements of CE Code Rule 6-206, Rule 6-208, Rule 36-100, Rule 36-200 and Rule 2-116 1).

This bulletin replaces Bulletin 2000-028-EL.

### **1. Number of supply services permitted by CE Code Rule 6-102.**

Except as permitted by Items a), b) and c), Rule 6-102 1) of the Canadian Electrical Code, Part I (CE Code) requires that only one supply service for each particular voltage be run to a building. Item c) permits two supply services with the same voltage to be run to a building, provided that the additional supply service is connected to the consumer's service supplying a completely self-contained occupancy where the occupancy is not located one above the other and have a separate entrance with direct access to ground level.

**Below is the summary of number of supply services permitted by Rule 6-102 1).**

Description of buildings on the same parcel	*Supply service to each building	*Two supply services to building / either building
Primary residential building - main house Ancillary residential building - laneway house	permitted by Rule 6-102 1)	permitted by Rule 6-102 1)c)
Detached house & its accessory building	special permission required	special permission required
**Single dwelling - side by side duplex		permitted by Rule 6-102 1)c)
Infill one-family dwelling	permitted by Rule 6-102 1)	permitted by Rule 6-102 1)c)
**Infill two-family dwelling	permitted by Rule 6-102 1)	permitted by Rule 6-102 1)c)
***Principal dwelling unit & secondary suite		special permission required

\*The supply authority must be consulted on the number and location of supply services.

\*\*For the application requirement of Rule 6-102 1)c), buildings with self-contained dwelling units must not be located above one another and must have separate entrances with direct access to the ground level. Dwelling units must be separated by a fire separation in accordance with the requirements of the VBBL.

\*\*\* Should be discussed with the City Electrician.

### **Notes**

- A. Supply services to a building that is not included in this summary (i.e. infill with shared garage) should be discussed with the City Electrician.

- B. It is important to note that for a conditional development under a development permit, the General Manager of Engineering Services requires that the BC Hydro service to the site be underground for the primary service connection. The primary distribution voltage supplied by BC Hydro is usually at 7,200V/12,470V Grounded Wye or 14,400 V/24, 940 V Grounded Wye.
- C. When a building contains more than one supply service with the same voltage and it is not practicable to group the service boxes together, Rule 6-102 3) requires that a permanent diagram is posted on or near each service box in the building that indicates the location of all other service boxes in the building.

**2. Services equipment location, consumer's service equipment location and consumer's service conductors location required by CE Code Rule 36-200, Rule 6-206 and Rule 6-208.**

Raceways or cables containing consumer's service conductors shall be located outside buildings in accordance with Rule 6-208. Rule 6-206, in part, requires that each consumer's service box shall be as close as practicable to the point where the consumer's service conductors enter the building. For the purpose of the interpretation of "as close as practicable" requirement, it is deemed to be the installation of a consumer's service box within 1.5 m from the point where the consumer's service conductors enter the building.

Rule 36-000 2) requires that the supply authority and the inspection department must be consulted before proceeding with any high-voltage installations. Rule 36-200 requires that the service equipment shall be installed in a location that complies with the requirements of the supply authority and, in the case of a building, shall be at the point of service entrance.

**Direction**

- A. Raceways or cables containing consumer's service conductors located outside of buildings are permitted to be enclosed in ducts (boxed in) provided that these ducts are attached to exterior surfaces of the buildings (to vinyl or aluminum siding, or to stucco finish).
- B. Where it is impracticable to install a consumer's service box within 1.5 m from the point where conductors enter the building, a Special Permission may be granted by the City Electrician to install a consumer's service box in a location that could be extended up to 6 m within the point where conductors enter the building. Refer to Bulletin 2009-004-EL.
- C. Provisions of the CE Code do not apply to the supply service conductors run within the consumer owned service raceways by the supply authority to a consumer's service. The installation of consumer's service raceways is regulated work (i.e. it is done by an electrical contractor under permit in accordance with applicable requirements of the CE Code), provisions of the CE Code apply to the consumer owned service raceways intended for installation of the BC Hydro run conductors. For the purpose of Rules 6-206, 6-208 and 36-200, consumer's service raceways containing BC Hydro run supply service conductors shall be permitted to enter the building for connection to a service box or other consumer's service equipment provided these raceways are encased in concrete.
- D. Where the raceways are intended for the installation of high-voltage conductors or cables run indoor by BC Hydro, these raceways shall be installed in conformance with Rule 36-100 2). The requirement of Rule 36-100 1)a) is not permitted to be amended by the provisions of Rule 6-208 1).

It is important to note that metal raceways embedded in areas subject to vehicular traffic such as parkade slabs and parking lot slabs must comply with the requirements of Rule 2-116 1) for corrosion protection; also refer to Rule 12-944. The locations of concrete-encased consumer's service raceways containing BC Hydro run conductors must be provided with permanent markers in accordance with Rule 36-100 4).

**Question 1**

Why do the provisions of the CE Code apply to the consumer owned service raceways intended for installation of the BC Hydro run conductors?

**Answer 1**

The supply service conductors may not have adequate overcurrent protection on the supply side, the consumer's service conductors should be run outside a building to prevent fire hazards to the building or occupants.

To prevent a fire or shock hazard, Rules 6-206 1)c) and 6-208 2) require that the length of the consumer's or supply service conductors be as short as practicable.

Where it is impractical to locate the service box close to the service conductor entry into a building, Rule 6-208 1) provides the methods for installing service raceways and cables so that unprotected consumer's service conductors can be run inside a building for an unlimited distance before terminating in a service box, without presenting a hazard.

Conductors operating at high voltage can pose a threat to human life, the wiring methods with metal protective barrier bonded to ground must be provided in accordance with Rule 36-100 2) for the consumer's service raceways intended for installation of the BC Hydro run conductors; so that any discharge is conducted safely to ground.

The Object of Section 0 of the CE Code addresses the fundamental principles of protection against electric shock, thermal effects, overcurrent, fault currents and overvoltage in electrical installations. Strict compliance with the prescriptive rules (Rules 2-116, 6-206, 6-208, 36-100, 36-200) of the CE Code is required to meet these fundamental safety principles and to provide an essentially safe installation.

**Question 2**

If it is not feasible to locate the service equipment at the point of service entrance as required by Rule 36-200, what is the alternative?

**Answer 2**

Rule 6-208 1) requires that consumer's service conductors are to be run outside a building to prevent fire hazards to the building or occupants. Rule 6-206, in part, requires that each consumer's service box shall be as close as practicable to the point where the consumer's service conductors enter the building.

Rule 36-200 requires that service equipment shall be at the point of service entrance of a building.

It is interpreted that the service equipment must be located at the first point where the supply service conductors enter the building. This will limit the length of the unprotected conductors in the building.

Where it is impractical to install the service equipment at the point where the supply service conductors enter the building:

- a) the supply authority and the inspection department must be consulted before proceeding with any such installation,
- b) the wiring methods used indoor must meet the applicable requirements of Rule 36-100 2) for the consumer's service raceways intended for installation of the BC Hydro run conductors,
- c) where applicable the consumer's service raceways in item (b) must be encased in concrete, and
- d) the locations of concrete-encased consumer's service raceways containing BC Hydro run conductors must be provided with permanent markers in accordance with Rule 36-100 4).

Strict compliance with the CE Code requirements must be achieved to ensure safe installations in the interests of public safety.

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